

## A Miniguide to Minerals

Nutrients like calcium, iron, and zinc are just as essential as vitamins. The table below shows, in capsule form, how much you need, what foods supply significant amounts, and the functions various minerals perform. Use it to plan a mineral-rich menu. (As with vitamins, however, sometimes diet alone can't satisfy the need for certain minerals. Pregnancy, menstruation, illness, crash dieting, food allergies, use of medication, or other circumstances may call for mineral supplements.)

<b>Mineral</b>	<b>Dietary Reference Intake (DRI)*</b>	<b>Food Sources</b>	<b>Primary Function</b>	<b>Deficiency Symptoms</b>
Calcium	1,000 milligrams	Milk and dairy products, sardines, salmon eaten with bones, oysters, tofu, green leafy vegetables, clams, citrus fruit.	Needed for building strong bones and teeth and maintaining strong bones throughout life. Required for normal muscle contraction and relaxation, heart action, nerve function and blood clotting.	Stunted growth in children, weakened bones in adults, bones that break easily. (Deficiency disease: osteoporosis.)
Chromium	35 micrograms	Brewers yeast, meat, clams, whole grains, unrefined foods, cheeses, nuts.	Works with insulin to take sugar into cells. Involved in breakdown of sugar to release energy.	Impaired glucose metabolism. (May lead to adult onset diabetes.)
Copper	900 micrograms	Organ meats, shellfish (especially oysters), whole grains, nuts, legumes, lean meat, fish, fruits, vegetables.	Needed for hemoglobin and to make red blood cells. Forms protective coverings for nerves. Part of several enzymes. May be involved with vitamin C in forming collagen. Needed in respiration and release of energy.	Anemia, bone defects, retarded growth, impaired metabolism.
Iodine	150 micrograms	Iodized salt, sea salt, seafood, seaweed, foods grown in iodine-rich soil, dairy products from animals fed iodine-rich feed.	Part of thyroxide, a hormone secreted by the thyroid gland, which helps to regulate growth, development, reproduction, and metabolic rate (rate at which calories are burned.)	Enlarged thyroid gland (goiter), sluggishness, and weight gain. Can cause severe retardation of developing fetus during pregnancy.
Iron	8 milligrams	Organ meats, red meat, fish, shellfish, poultry, enriched breads and cereals, egg yolks, legumes, leafy green vegetables, dried fruits, blackstrap molasses.	Part of hemoglobin which carries oxygen to cells. Part of myoglobin which makes oxygen available for muscle contraction. Needed for use of energy by the cells.	Anemia, fatigue, muscle weakness, headaches, pale skin, inability to concentrate.

(continued)

<b>Mineral</b>	<b>Dietary Reference Intake (DRI)*</b>	<b>Food Sources</b>	<b>Primary Functions</b>	<b>Deficiency Symptoms</b>
Magnesium	400 milligrams	Whole grains (especially wheat germ and bran), nuts, legumes, dark green vegetables, seafood, chocolate, cocoa.	Builds protein. Needed to release energy from food. Helps relax muscles after contraction. Helps resist tooth decay. Needed for transmission of nerve impulses.	Confusion, nervousness, disorientation, hallucinations. Muscle weakness can progress to convulsions, and ultimately tetany. (Deficiencies are unlikely unless another medical problem exists.)
Phosphorus	700 milligrams	Milk and dairy products, fish, meat, poultry, egg yolks, nuts, legumes, peas, whole grains, processed foods, soft drinks.	Aids in building strong bones and teeth. Activates vitamins for use. Needed to release energy from food. Needed for transmission of nerve impulses.	Muscle weakness, loss of appetite, bone pain. (Deficiencies are unlikely unless another medical problem exists.)
Potassium	4,700 milligrams	Lean meat, fresh fruits and vegetables, milk and dairy products, nuts, legumes, most salt substitutes.	Needed for muscle contraction, heart action, nerve transmission, fluid balance. Involved in making proteins. Needed for maintenance of acid-base balance. Required for formation of glycogen (short-term storage of energy).	Muscle weakness, irregular heartbeat, apathy, confusion and loss of appetite. (Deficiencies are unlikely, unless excessive water loss occurs through vomiting, diarrhea, extreme sweating, or use of diuretics.)
Selenium	55 micrograms	Organ meats, seafood, lean meats, eggs, whole grains, wheat germ.	Works with vitamin E to act as antioxidant and protect cell membranes.	Heart muscle abnormalities, anemia (rare).
Sodium	1,500 milligrams	Salt, soy sauce, monosodium glutamate (MSG), and most processed foods (especially regular soups, sauces, and cured meats), milk and dairy products.	Needed for normal fluid balance, both inside and outside cells; nerve transmission, acid-base balance, and muscle contraction.	Muscle cramps, weakness, mental apathy, loss of appetite. (Deficiencies unlikely, unless another medical problem exists.)
Zinc	11 milligrams	Liver, egg yolks, oysters, lean meat, fish, poultry, milk and dairy products, whole grains, vegetables.	Works as part of many enzymes. Present in insulin. Needed for making reproductive hormones, normal sense of taste, and wound healing.	Retarded growth, prolonged wound healing, slow sexual development, loss of taste (as a result, loss of appetite).

\* Dietary Reference Intake (DRI) is a system of nutrition recommendations from the Institute of Medicine (IOM) of the National Academy of Sciences. The DRI system includes:

- Recommended Dietary Allowances (RDA) - Daily dietary intake levels of nutrients considered enough to meet the needs of 97-98% healthy individuals in each life stage and gender group
- Adequate Intakes (AIs) - Amounts of nutrients considered to be adequate where no RDAs have been established